UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:

St. Louis Smelting and Refining Site,
Collinsville, Madison County, Illinois

NL Industries, Inc.

Respondent

ADMINISTRATIVE ORDER ON
CONSENT FOR REMOVAL ACTION

U.S. EPA Region 5
CERCLA Docket No. V-W- '06-C-849

Proceeding Under Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622

TABLE OF CONTENTS

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Order on Consent "Order" is entered into voluntarily by the United States Environmental Protection Agency "EPA" and NL Industries, Inc. "Respondent". This Order provides for the performance of a removal action by the Respondent at or in connection with the property located at Cuba Lane in Collinsville, Madison County, Illinois, known as the "St. Louis Smelter Site" or the "Site," as defined in Paragraph 7(q).

2. This Order is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, as amended "CERCLA".

3. EPA has notified the State of Illinois, the "State", of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. EPA and Respondent recognize that this Order has been negotiated in good faith and that the actions undertaken by the Respondent in accordance with this Order do not constitute an admission of any liability. The Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Order, the validity of the findings of facts, conclusions of law, and determinations in Sections IV and V of this Order. The Respondent agrees to comply with and be bound by the terms of this Order and further agree that it will not contest the basis or validity of this Order or its terms.

II. PARTIES BOUND

5. This Order applies to and is binding upon EPA and upon the Respondent and its successors and assigns. Any change in ownership or corporate status of the Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter the Respondent's responsibilities under this Order.

6. The Respondent shall ensure that its contractors, subcontractors, and representatives receive a copy of this Order. The Respondent shall be responsible for any noncompliance with this Order.

III. DEFINITIONS

7. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "AOC" shall mean the Administrative Order On Consent, Docket No. _____, entered into by EPA and NL.

b. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

c. "Day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

d. "Effective Date" shall be the effective date of this Order as provided in Section XXIX.

e. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

f. "IEPA" shall mean the Illinois Environmental Protection Agency and any successor departments or agencies of the State.

g. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

h. "Matters Addressed" shall mean the recovery of Response Costs and performance of Work required by this Order.

i. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

j. "Order" shall mean this Administrative Order on Consent and all appendices attached hereto (listed in Section XXVIII). In the event of conflict between this Order and any appendix, this Order shall control.

k. "Paragraph" shall mean a portion of this Order identified by an Arabic numeral.

l. "Parties" shall mean EPA and Respondent.

m. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

n. "Respondent" shall mean NL Industries, Inc..

o. "Response Costs" shall mean all costs incurred after the effective date of this Order, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Order, verifying the Work, or otherwise negotiating, implementing, overseeing, or enforcing this Order, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to 32 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation) Paragraph 42 (emergency response), and Paragraph 67 (work takeover).

p. "Section" shall mean a portion of this Order identified by a Roman numeral.

q. "Site" shall mean Pine Lake as depicted in Appendix B.

r. "State" shall mean the State of Illinois.

s. "Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(4); 2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); and 3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

t. "Work" shall mean all activities the Respondent is required to complete to fulfill the obligations described in the Work Plan which is provided as Appendix A.

IV. FINDINGS OF FACT

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

8. The St. Louis Smelter Site, in Collinsville, Illinois is the location of a former lead smelting and refining operation which reportedly operated from 1904 until 1933. The former smelter is located east of Route 159.

9. Pine Lake is located adjacent to the former smelter.

10. The St. Louis Smelting and Refining Company was a former subsidiary of the Respondent.

11. The facility closed on November 21, 1933. The actual date when the facility was dismantled is unknown.

12. Following the closing of the facility, portions of the St. Louis Smelter Site were sold to various persons.

13. In the 1950s, residential development began in the area directly north and south of Pine Lake, known as the Pine Lake Subdivision. Residential development east of Pine Lake, in what is called the Collinswoods subdivision, began in the mid to late 1970s.

14. Surface water runoff from residential properties adjacent to Pine Lake runs into the Lake. The residents of the Pine Lake Subdivision surrounding Pine Lake own the water body. Pine Lake is used for recreational fishing throughout the year and swimming during warmer months. Residents have brought in sand for a small beach area on a central finger protruding into the lake and a permanent swimming dock exists in the south-central portion of the lake.

15. In March 2002, IEPA conducted field-based characterization of residential soils and lake sediment. Sediment from Pine Lake contained lead levels from below detection level to over 86,300 ppm.

16. In April 2002, IEPA referred the matter to EPA for consideration of a time critical removal.

17. EPA reviewed existing Site sampling results gathered by IEPA and based on its review of the existing data, EPA determined that the levels of lead in Pine Lake may present an

imminent and substantial endangerment to human health and the environment and warranted a time critical removal.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

18. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, EPA has determined that:

a. The Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The lead contamination found at the Site, as identified in the Findings of Fact above, is a "hazardous substance" as defined by Section 101(4) of CERCLA, 42 U.S.C. § 9601(14).

c. The Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. The Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is liable for performance of a response action and for response costs incurred and to be incurred at the Site. Respondent was the "owner" and/or "operator" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2), and further arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment of hazardous substances at the facility, within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

e. The conditions described in Paragraphs 8 to 17 of the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ('NCP"), 40 CFR §300.41 5(b)(2). These factors include, but are not limited to, the following:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants:

The Site is located on the former St. Louis Smelting and Refining Company property. IEPA has documented the presence of lead in lake sediment. The health concerns at this Site are related to the fact that residents live near the lakes, potentially exposing young children, pregnant women and elderly individuals to contamination. In addition, Pine Lake is used for recreation by the local population thereby exposing individuals to elevated lead concentrations. The highest concentration of lead was over 86,000 ppm in the Pine Lake sediment.

ii. High levels of hazardous substances or pollutants or contaminants in lake sediments largely at or near the surface, that may migrate or pose a threat of release:

IEPA has documented elevated lead levels in the sediments in Pine Lake. These levels range from over 86,000 ppm at zero to six inches to above 5,000 ppm at 30 inches. Some of the concentrations were found in the shallows of the lake where during dry conditions these sediments are exposed to the general population and are subject to migration. The elevated concentrations of lead in the soils at or near the surface may pose a threat of further migration of contaminated materials due to rain or melting snow. There is also the possibility of airborne migration of lead attached to dust particles. People and animals contacting contaminated areas could track lead to other areas on-Site as well as off-Site.

iii. The unavailability of other appropriate federal or state response mechanisms to respond to this release:

In a letter dated April 22, 2002 Illinois EPA requested that U. S. EPA Region V assist with the St. Louis Smelting and Refining Site. The City of Collinsville and an Illinois Senator have also indicated their desire to see this Site cleanup completed. Neither the State of Illinois nor the City of Collinsville has the funds to undertake removal of hazardous wastes found at this Site.

g. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. §9606(a).

h. The removal action required by this Order is reasonably necessary to protect the public health, welfare or the environment and, if carried out in compliance with the terms of this Order, will be considered consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

VI. ORDER

19. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Respondent shall comply with all provisions of this Order, including, but not limited to, all attachments to this Order and all documents incorporated by reference into this Order.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

20. Respondent shall retain one or more contractors to perform the Work and shall notify EPA of the names and qualifications of every contractor within 35 days of the Effective Date. Respondent shall also notify EPA of the names and qualifications of every contractor or subcontractor retained to perform the Work at least 5 days prior to commencement of such Work. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondents. If EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within 10 days of EPA's disapproval. Any proposed contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan "QMP". The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B0-1/002), or equivalent documentation as required by

EPA. Any decision not to require submission of the contractor's QMP should be documented in a memorandum from the OSC and Regional QA personnel to the Site file.

21. Respondent has designated Russ Perry as the Project Coordinator, who shall be responsible for administration of all actions by Respondent required by this Order. Within 7 days after the Effective Date, Respondent shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 10 days following EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from EPA relating to this Order shall constitute receipt by Respondent.

22. EPA has designated Kevin Turner of the Emergency Response Branch 2, Region 5, as its On-Scene Coordinator "OSC". Except as otherwise provided in this Order, Respondent shall direct all submissions required by this Order to the OSC at U.S. EPA, 8588 Rt. 148, Marion, IL 62959.

23. EPA and Respondent shall have the right, subject to Paragraph 21, to change their respective designated OSC or Project Coordinator. Respondent shall notify EPA 10 days before such a change is made. The initial notification may be made orally, but shall be followed by a written notice within 10 days after oral notification.

VIII. WORK TO BE PERFORMED

24. The Respondent shall perform all actions and submit all documents required by the Work Plan pursuant to the schedule set forth in the Work Plan. The Work Plan that the Respondent is obligated to implement pursuant to this Order is attached as Appendix A.

25. Work Plan and Implementation.

a. EPA shall require preparation of a Quality Assurance Project Plan "QAPP" as part of the Work Plan except in circumstances involving emergency or non-complex removal work. The QAPP should be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPAI24O/B-01/003, March 2001), and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998).

b. Respondent shall not commence any Work except in conformance with the terms of this Order. Respondent shall commence implementation of the Work Plan pursuant to the schedule set forth in the Work Plan, unless otherwise directed by the OSC in accordance with this Order.

26. Health and Safety Plan. Within 14 days after the contractor is approved, Respondent shall submit for EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-Site work under this Order. This plan shall be prepared in accordance with EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. If EPA determines that it is appropriate, the plan shall also include contingency planning.

Respondent shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the pendency of the removal action.

27. Quality Assurance and Sampling.

a. All sampling and analyses performed pursuant to this Order shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control "QA/QC", data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance. Respondent shall follow, as appropriate, "Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures" (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondent shall only use laboratories that have a documented Quality System that complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01/002, March 2001)," or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program "NELAP" as meeting the Quality System requirements.

b. Upon request by EPA, Respondent shall have such a laboratory analyze samples submitted by EPA for QA monitoring. Respondent shall provide to EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

c. Upon request by EPA, Respondent shall allow EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall notify EPA not less than 10 days in advance of any sample collection activity, unless shorter notice is agreed to by EPA. EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

28. Reporting.

a. Respondent shall submit a written progress report to EPA concerning actions undertaken pursuant to this Order on the 10th day of every month after the date of receipt of EPA's approval of the Work Plan until termination of this Order, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

b. Respondent shall submit 3 copies of all plans, reports or other submissions required by this Order or any approved work plan. Upon request by EPA, Respondent shall submit such documents in electronic form.

c. If the Respondent owns or controls any property at the Site, Respondent shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice to the transferee that the property is subject to this Order and written notice to EPA and the State of the proposed conveyance, including the name and address of the transferee.

Respondent also agrees to require that its successors comply with the immediately proceeding sentence and Sections IX (Site Access) and X (Access to Information).

29. Final Report. Within 90 days after completion of all Work required by this Order, Respondent shall submit for EPA's review and approval a final report summarizing the actions taken to comply with this Order. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports." The final report shall include a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

30. Off-Site Shipments.

a. Respondent shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to the OSC. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

i. Respondent shall include in the written notification the following information: 1) the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

ii. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by Paragraph 30(a) and (b) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

b. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

IX. SITE ACCESS

31. If the Site, or any other property where access is needed to implement this Order, is owned or controlled by the Respondent, the Respondent shall, commencing on the Effective Date, provide EPA ,the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Order.

32. Where any action under this Order is to be performed in areas owned by or in possession of someone other than the Respondent, Respondent shall use its best efforts to obtain all necessary access agreements. Respondent shall notify EPA if after using its best efforts it is unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money and reasonable restoration of the excavated property in consideration of access. Respondent shall describe in writing its efforts to obtain access. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate. Respondent shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XV (Payment of Response Costs).

33. Notwithstanding any provision of this Order, EPA and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

X. ACCESS TO INFORMATION

34. Respondent shall provide to EPA and the State, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the Site after the Effective Date of this Order or to the implementation of this Order, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work.

35. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to EPA and the State under this Order to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA and the State, or if EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

36. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondent asserts such a privilege in lieu of providing documents, it shall provide EPA and the State with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Order shall be withheld on the grounds that they are privileged.

37. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XI. RECORD RETENTION

38. Until 10 years after Respondent's receipt of EPA's notification pursuant to Section XXVIII (Notice of Completion of Work), Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 10 years after Respondent's receipt of EPA' s notification pursuant to Section XXVIII (Notice of Completion of Work), Respondent shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work.

39. At the conclusion of this document retention period, Respondent shall notify EPA and the IEPA at least 90 days prior to the destruction of any such records or documents, and, upon request by EPA or the IEPA , Respondent shall deliver any such records or documents to EPA or the IEPA. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege, it shall provide EPA or the IEPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Order shall be withheld on the grounds that they are privileged.

40. Respondent hereby certifies that to its knowledge and belief, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA on December 30, 2002.

XII. COMPLIANCE WITH OTHER LAWS

41. Respondent shall perform all actions required pursuant to this Order in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Order shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements "ARARs" under federal environmental or state environmental or facility siting laws. The Respondent shall seek to comply with the ARARs identified in the Work Plan, attached as Appendix A.

XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

42. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency

situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Order, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer, Emergency Planning and Response Branch, EPA Region 5, at (312)353-2318 of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondent shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XV (Payment of Response Costs).

43. In addition, in the event of any release of a hazardous substance from the Site, Respondent shall immediately notify the OSC at (312) 353-2318 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to EPA within 7 days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, et seq.

XIV. AUTHORITY OF ON-SCENE COORDINATOR

44. The OSC shall be responsible for overseeing Respondent's implementation of this Order. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Order, or to direct any other removal action undertaken at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

XV. PAYMENT OF RESPONSE COSTS

45. Payments for Response Costs.

a. Respondent shall pay EPA all Response Costs not inconsistent with the NCP. On a yearly basis, EPA will send Respondent a bill requiring payment that includes an itemized cost summary, which includes direct and indirect costs incurred by EPA and its contractors. Respondent shall make all payments within 30 days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 47 of this Order.

b. Respondent shall make all payments required by this Paragraph by a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making payment and EPA Site/Spill ID number B54N. Respondent shall send the checks to:

U.S. Environmental Protection Agency
Program Accounting & Analysis Section
P.O. Box 70753
Chicago, Illinois 60673

46. In the event that the payments for Response Costs are not made within 30 days of Respondent's receipt of a bill, Respondent shall pay Interest on the unpaid balance. The Interest on Response Costs shall begin to accrue on the date payment was due under the bill and shall

continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVIII.

47. Respondent may dispute all or part of a bill for Response Costs submitted under this Order, if Respondent alleges that EPA has made an accounting error, or if Respondent alleges that a cost item is inconsistent with the NCP. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondent shall pay the full amount of the uncontested costs to EPA as specified in Paragraph 45 on or before the due date. Within the same time period, Respondent shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondent shall simultaneously transmit a copy of both checks to the person listed in Paragraph 45(b) above. Respondent shall ensure that the prevailing party in the dispute shall receive the amount upon which they prevailed from the escrow finds plus interest within 10 days after the dispute is resolved.

XVI. DISPUTE RESOLUTION

48. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Order. The Parties shall attempt to resolve any disagreements concerning this Order expeditiously and informally.

49. If Respondent objects to any EPA action taken pursuant to this Order, including billings for Response Costs, it shall notify EPA in writing of its objections within 30 days of Respondent's receipt of notice of such action, unless the objections have been resolved informally. Respondent's Statement of Position on the matter in dispute can include, but is not limited to, any factual data, analysis or opinion supporting its position and any supporting documentation relied upon by the Respondent. EPA and Respondent shall have 21 days from EPA's receipt of Respondent's Statement of Position to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA.

50. Any agreement reached by the parties pursuant to this Section shall be in writing and shall, upon signature by both parties, be incorporated into and become an enforceable part of this Order. If the Parties are unable to reach an agreement within the Negotiation Period, an EPA management official at the Division Director level or higher will issue a written decision on the dispute to Respondent. EPA's decision shall be incorporated into and become an enforceable part of this Order. Respondent's obligations under this Order shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

XVII. FORCE MAJEURE

51. Respondent agrees to perform all requirements of this Order within the time limits established under this Order, unless the performance is delayed by a *force majeure*. For purposes of this Order, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under

this Order despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work, or increased cost of performance.

52. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a *force majeure* event, Respondent shall notify EPA orally within 3 days of when Respondent first knew that the event might cause a delay. Within 10 days thereafter, Respondent shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if it intends to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

53. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Order that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondent in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XVIII. STIPULATED PENALTIES

54. Respondent shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 55 and 56 for failure to comply with the requirements of this Order specified below, unless excused under Section XVII (*Force Majeure*). "Compliance" by Respondent shall include completion of the activities under this Order or any work plan or other plan approved under this Order identified below in accordance with all applicable requirements of law, this Order, and any plans or other documents approved by EPA pursuant to this Order and within the specified time schedules established by and approved under this Order.

55. Stipulated Penalty Amounts - Work.

The following stipulated penalties shall accrue per violation per day for any noncompliance or delay in any milestone or point listed in the Work Plan schedule.

Penalty Per Violation Per Day	Period of Noncompliance
$200	1st through 14th day
$400	15th through 30th day
$800	31st day and beyond

56. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 20, 21, 25, 26, 29, 30, 32 and 43.

Penalty Per Violation Per Day	Period of Noncompliance
$100	1st through 14th day
$250	15th through 30th day
$500	31st day and beyond

57. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 67 of Section XX, Respondent shall be liable for a stipulated penalty in the amount of $50,000.

58. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st day after EPA' s receipt of such submission until the date that EPA notifies Respondent of any deficiency; and 2) with respect to a decision by the EPA Management Official at the Division Director level or higher, under Paragraph 50 of Section XVI (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA management official issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

59. Following EPA's determination that Respondent has failed to comply with a requirement of this Order, EPA may give Respondent written notification of the failure and describe the noncompliance. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondent of a violation.

60. All penalties accruing under this Section shall be due and payable to EPA within 30 days of Respondent's receipt from EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVI (Dispute Resolution). All payments to EPA under this Section shall be paid by certified or cashier's check made payable to "EPA Hazardous Substances Superfund," shall be mailed to U.S. Environmental Protection Agency, Program Accounting & Analysis Section, P.O. Box 70753, Chicago, Illinois 60673, shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID Number B54N, the EPA Docket Number_____, and the name and address of the party making payment. Copies of checks paid pursuant to this Section, and any accompanying transmittal letters, shall be sent to EPA as provided in Paragraph 22.

61. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Order.

62. Except as otherwise provided, Penalties shall continue to accrue during any dispute resolution period, but need not be paid until 30 days after the dispute is resolved by agreement or by receipt of EPA's decision.

63. If Respondent fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 60. Nothing in this Order shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's

violation of this Order or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(*l*) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(*l*), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 106(b) or 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Order or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XX, Paragraph 67. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Order.

XIX. COVENANT NOT TO SUE BY EPA

64. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Order, and except as otherwise specifically provided in this Order, EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for Matters Addressed in this Order. This covenant not to sue shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by Respondent of all obligations under this Order, including, but not limited to, payment of Response Costs pursuant to Section XV. This covenant not to sue extends only to Respondent and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

65. Except as specifically provided in this Order, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Order, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

66. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Order is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. claims based on a failure by Respondent to meet a requirement of this Order;

b. liability for costs not included within the definition of Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

67. Work Takeover. In the event EPA determines that Respondent has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. Respondent may invoke the procedures set forth in Section XVI (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph shall be considered Response Costs that Respondent shall pay pursuant to Section XV (Payment of Response Costs). Notwithstanding any other provision of this Order, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXI. COVENANT NOT TO SUE BY RESPONDENT

68. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Response Costs, or this Order, including:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of response actions at or in connection with the Site pursuant to this Order, including any claim under the United States Constitution, the State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Site.

Except as provided in Paragraph 70 (Waiver of Claims), these covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 66 (a) - (c) and (e) - (g), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

69. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 3 00.700(d).

70. Respondent agrees not to assert any claims and to waive all claims or causes of action that it may have for all matters relating to the Site, including for contribution, against any person where the person's liability to Respondent with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous

substances at the Site, or having accepted for transport for disposal or treatment of hazardous substances at the Site, if

a. the materials contributed by such person to the Site containing hazardous substances did not exceed the greater of i) 0.002% of the total volume of waste at the Site, or ii) 110 gallons of liquid materials or 200 pounds of solid materials.

b. This waiver shall not apply to any claim or cause of action against any person meeting the above criteria if EPA has determined that the materials contributed to the Site by such person contributed or could contribute significantly to the costs of response at the Site. This waiver also shall not apply with respect to any defense, claim, or cause of action that a Respondent may have against any person if such person asserts a claim or cause of action relating to the Site against such Respondent.

XXII. OTHER CLAIMS

71. By issuance of this Order, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Order.

72. Except as expressly provided in Section XXI, Paragraph 70 (De Micromis Waivers) and Section XIX (Covenant Not to Sue by EPA), nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

73. No action or decision by EPA pursuant to this Order shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. CONTRIBUTION PROTECTION

74. The Parties agree that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "Matters Addressed" in this Order. Except as provided in Section XXI, Paragraph 70, of this Order (De Micromis Waivers), nothing in this Order precludes the United States or Respondent from asserting any claims, causes of action, or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XXIV. INDEMNIFICATION

75. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Order provided that this indemnity will not apply to any actions taken by Respondent or anyone acting on its behalf based on a directive of the EPA or OSC that is outside the scope of this Order. In addition, Respondent agrees to pay

the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Order. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Order. Neither Respondent or any such contractor shall be considered an agent of the United States.

76. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

77. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between the Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXV. INSURANCE

78. At least 7 days prior to commencing any on-Site work under this Order, Respondent shall secure, and shall maintain for the duration of the Work, comprehensive general liability insurance and automobile insurance with limits of two million dollars, combined single limit. Within the same time period, Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. In addition, for the duration of the Work, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Order. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. MODIFICATIONS

79. The OSC may make modifications to the Work Plan or schedule consistent with Section VIII (Work to be Performed) and the terms of this Order in writing or by oral direction. Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date the date of the OSC's oral direction. Any other requirements of this Order may be modified in writing by mutual agreement of the parties.

80. If Respondent seeks permission to deviate from the Work Plan or schedule, Respondent's Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral or written approval from the OSC pursuant to Paragraph 79.

81. No informal advice, guidance, suggestion, or comment by the OSC or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Order, or to comply with all requirements of this Order, unless it is formally modified.

XXVII. NOTICE OF COMPLETION OF WORK

82. When EPA determines, after EPA's review of the Final Report, that all Work has been fully performed in accordance with this Order, with the exception of any continuing obligations required by this Order, including payment of Response Costs, EPA will provide written notice to Respondent. If EPA determines that any such Work has not been completed in accordance with this Order, EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan if appropriate in order to correct such deficiencies. Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this Order.

XXVIII. SEVERABILITY/INTEGRATION/APPENDICES

83. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated or determined to be subject to a sufficient cause defense by the court's order.

84. This Order and its appendices constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Order. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Order. The following appendices are attached to and incorporated into this Order:

Appendix A - Work Plan

Appendix B - Map of Site

XXIX. EFFECTIVE DATE

85. This Order is effective upon Respondent's receipt of a copy of the Order signed by the Regional Administrator or his/her delegatee.

IN THE MATTER OF:

St. Louis Smelting and Refining Site, Collinsville, Madison County, Illinois, U.S. EPA Region 5
CERCLA Docket No. _____

The undersigned representative of Respondent certifies that it is fully authorized to enter into the terms and conditions of this Order and to bind the party it represents to this document.

Agreed this ____ day of _____, 2006.

For Respondent NL Industries, Inc.

By _____

Title Vice President & Gen'l Counsel

IN THE MATTER OF:

St. Louis Smelting and Refining Site, Collinsville, Madison County, Illinois, U.S. EPA Region 5
CERCLA Docket No. ___

It is so ORDERED and Agreed this 16 day of MAY, 2006.

BY: Richard Karl DATE: 5-16-06
Richard Karl, Director
Superfund Division
Region 5
U.S. Environmental Protection Agency

EFFECTIVE DATE: _____

2138594v1

APPENDIX A

REMOVAL ACTION WORK PLAN
FOR PINE LAKE SEDIMENTS AT THE FORMER ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, MADISON COUNTY, ILLINOIS

ADVANCED GeoServices™

Engineering for the Environment. Planning for People.

REMOVAL ACTION WORK PLAN
FOR PINE LAKE SEDIMENTS AT THE FORMER ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, MADISON COUNTY, ILLINOIS

REMOVAL ACTION WORK PLAN
FOR PINE LAKE SEDIMENTS AT THE FORMER ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, MADISON COUNTY, ILLINOIS

Prepared By:

ADVANCED GEOSERVICES CORP.
West Chester, Pennsylvania

2003-1055-08
October 26, 2005

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

PAGE NO.

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

TABLE

LIST OF FIGURES

FIGURE

LIST OF APPENDICES

APPENDIX

1.0 INTRODUCTION

This Removal Action Work Plan (Work Plan) was prepared by Advanced GeoServices Corp. (AGC) on behalf of the Respondent to the Administrative Order on Consent (AOC) Docket # _____ (NL Industries, Inc.) for addressing impacted sediments in Pine Lake due to the former St. Louis Smelting and Refining Company (Site) located in Collinsville, Madison County, Illinois (See Figure 1-1). This Work Plan was prepared consistent with discussions between the Respondent, the United States Environmental Protection Agency (USEPA) and the Illinois Environmental Protection Agency (IEPA).

For the purposes of this Work Plan, the Site is defined as the Pine Lake sediments exceeding 600 ppm average lead concentration, to a maximum depth of 30 inches beneath the existing sediment surface within the shallow water of Pine Lake (<4'), due to the operations of the former St. Louis Smelting and Refining Company. The Site area is shown on Figures 1-1 and 1-2 of the Work Plan. The specific Site area which exceeds the 600 ppm average lead standard to a depth of 30 inches will be defined by delineation sampling in the field, in accordance with this Work Plan.

1.1 PURPOSE OF WORK PLAN

This Work Plan addresses the sediment removal and restoration activities to be performed in Pine Lake in accordance with discussions with USEPA. The objective of the Work Plan is to describe the removal action procedures necessary to remediate sediments with average total lead concentrations equal to or greater than 600 milligrams per kilogram (mg/kg or ppm) to a maximum depth not to exceed 30 inches beneath the surface of the sediments. The sediments to be addressed are located on the north end of the lake, within water which is typically 0-4' deep, as shown on Figures 1-3 and 1-4.

1.2 WORK PLAN ORGANIZATION

The remainder of this Work Plan is organized as follows:

- Section 2.0 - Site Background
- Section 3.0 - Removal Action Procedures
- Section 4.0 - Project Organization
- Section 5.0 - Reporting
- Section 6.0 - Project Schedule
- Section 7.0 - Health and Safety
- Section 8.0 - References

2.0 SITE BACKGROUND

The St. Louis Smelting and Refining Company reportedly operated a facility in the Site vicinity from 1904 to 1933. Primary operations were conducted on approximately 40 acres. Very little information or records of the facility are available. However, it is known that operations of the facility included primary lead smelting. A man-made five-acre (approx.) lake, currently known as Pine Lake, exists on the west side of the Site and a small unnamed lake exists on the eastern side of the Site. Residential development in the area around Pine Lake began in the mid 1950's and progressed in phases.

During March 2002, IEPA conducted sediment sampling in Pine Lake. IEPA collected samples from 16 locations at 6, 12, 24, and 30 inches below the sediment surface. The average concentrations of lead trended down with increasing depth as follows: 6-12 inches (5800 mg/kg), 12-24 inches (5400 mg/kg), and 24-30 inches (460 mg/kg). Figure 2-1, prepared by IEPA, shows the highest concentrations of lead were found in the eastern finger of Pine Lake, near the former smelter discharge area. This suggests that these sediments have remained stable with minimal migration over the last 70 years. This is consistent with the relatively stable conditions expected in the lake and the lake sediments, and the lack of scouring forces on the bottom of the lake (as opposed to a river or creek where considerable scour would be expected). Figure 1-2 shows the approximate water depths of Pine Lake based on a survey performed by AGC in 2005.

3.0 REMOVAL ACTION PROCEDURES

3.1 OVERVIEW OF REMOVAL ACTION APPROACH

This section describes the procedures to be implemented during the removal action for the Pine Lake sediments shown on Figure 1-3. As part of the systematic remediation approach being followed on the removal action, the following general steps will be followed:

- Initial grade control;
- Conduct photodocumentation of pre-excavation conditions of the area surrounding Pine Lake and roadways (performed by Contractor);
- Lower lake water level to approximately 4.5 feet below benchmark;
- Test pit layout;
- Sample to determine initial vertical limits of removal within removal area (See Figure 1-3);
- Complete sediment grade control;
- Conduct excavation activities;
- Conduct soil confirmation sampling to verify that the performance standard has been met and/or when the maximum depth of excavation (30 inches) has been achieved, whichever occurs first;
- Construct lake shore embankment physical stabilization;
- Perform or provide for restoration of the land areas disturbed by the removal action; and
- Refill lake.

Details of the procedures associated with these activities are described below.

3.2 SITE PREPARATION ACTIVITIES

3.2.1 Property Owner Identification and Access

Access permission to perform the removal action will be/has been obtained from the Pine Lake Homeowners Association. Implementation of this Work Plan is contingent on obtaining access to Pine Lake and any additional areas necessary for the Contractor to perform the work. USEPA will assist in providing access, as necessary, consistent with the AOC.

3.2.2 Test Pit Sampling

3.2.2.1 **Sampling Procedures**

Test pits will be excavated at approximately 50-foot grid spacing (See Figure 1-3) by the Contractor to determine the initial removal depths after the lake level has been lowered in accordance with Section 3.2.9. Discrete samples will be collected from a sidewall of each test pit from the following depths: 6 inches, 12 inches, 18 inches and 24 inches. The samples will be dried, homogenized and subsequently analyzed using an XRF.

Approximately 5% of the samples will be sent off-site to confirm the accuracy of the XRF sampling. The QAPP presented in Appendix B describes the sampling procedures in detail, including sending split samples to an off-site laboratory to develop a correlation between the XRF and the fixed based laboratory. The XRF corrected concentration will be the basis for all removal decisions.

3.2.2.2 **Data Evaluation**

Following the test pit sampling and data analysis, the total lead results of each horizon will be compared to the clean-up level of 600 mg/kg. If any horizon sample is equal to or greater than 600 mg/kg, the 2500 sf (Square Feet) area represented by the sample will be scheduled for removal and

the excavation depth will be consistent with the sampling results. If all the horizon samples are below the 600 mg/kg clean-up level, the 2,500 sf area will be removed from further study and no further action to the 2,500 sf area will be performed. If the upper 12-inches of sediment from multiple grid areas consistently have lead concentrations less than the clean-up level but deeper horizons exceed the clean-up level, the QA official will propose the area that does not require removal.

Results of investigations will be summarized by the Contractor and presented to USEPA within two weeks of sampling. Concurrence with the proposed removal depths will be obtained prior to the start of the excavation.

3.2.3 Photodocumentation

Prior to the start of sediment removal work, the Contractor will photodocument the condition of the lake area and roadways to be used. This will consist of a video of the entire lake shoreline, including existing topography, and any sidewalks, driveway, docks, recreation areas, as well as, the existing vegetation which may be impacted. Still photographs may also be utilized, in addition to video documentation, for easier reference during restoration. All photodocumentation should be available to the QA official or other Respondent's representatives for review and copying at anytime.

3.2.4 Contractor Permits, Certificates and Licenses

The Contractor will perform sediment removal after the de-watering of Pine Lake. USEPA and IEPA shall identify any applicable or relevant and appropriate requirements (ARARs) as part of their Work Plan review. In the event no ARARs are identified, the Contractor will perform all work in accordance with Best Management Practices (BMPs). The Contractor will not proceed with any intrusive work until the Contractor's proposed BMPs and approach to the work have been approved by the USEPA.

3.2.5 Contractor Mobilization

The Contractor will mobilize equipment, supplies, and support zone facilities to the Site as needed to conduct removal activities. The existing soil staging/support area for the residential removal will be used by the Contractor. Equipment and materials will be inspected for compliance with contract requirements, specifications, material quality and operability by the QA official. Mobilization will occur following the Notice-To-Proceed and the submission of any required pre-construction submittals. Electric and water service will be supplied by the Contractor as needed in accordance with local, state, and federal regulations to conduct removal operations.

3.2.6 Decontamination Facilities

The Contractor will establish decontamination facilities and/or stations for personnel and equipment sufficient to support site activities at the sediment removal and sediment staging work areas. Decontamination of personnel, equipment, and materials will be performed in accordance with applicable USEPA and OSHA regulations. Additional detail for decontamination facilities and procedures are provided in the Health and Safety Plan (HASP Appendix C).

3.2.7 Soil Staging Area

The Contractor will use the existing residential removal soil staging area. The purpose of the staging area is to allow the Contractor to store sediment until such time as the disposal facility can accommodate delivery. The staging area may also contain structural fill and topsoil stockpiles. The materials will be covered by the Contractor with 6-mil (min.) polyethylene sheeting when requested by the QA official to eliminate rainwater contact and to provide dust control. Temporary covers will be anchored with sandbags or similar methods to prevent uplift. Also, if treatment of excavated sediment is required to meet TCLP standards, an area may be constructed in the staging area to facilitate treatment before sending sediment to an off-site disposal facility.

The staging area will include controlled access to deter unauthorized personnel from entering the area. Measures will be taken to prevent cross contamination and release of fugitive dust emissions. Control measures will include, but not be limited to:

- Barriers between excavated soil, in-situ and backfill soils;
- Construction and safety fencing;
- Earthen berms as stormwater protection;
- Covers of all stockpiles; and
- Dust suppression and air monitoring (see HASP for specifics).

The Contractor will be responsible for modifying or repairing any portion of the existing staging area to meet the requirements of this section and its own material handling plans.

3.2.8 Lake De-Watering

The Contractor will lower the lake level a minimum of 4.5 feet below the top of the outlet riser. The water will be pumped directly into the outlet structure. All discharges will pass through a filter capable of allowing the discharged water to meet the Illinois General Use Water Quality Standards. The top of the outlet riser will be considered the elevation benchmark for the start of sediment removal.

3.2.9 Transport Vehicle Routes

The transport route to the soil staging area using the local roads is several miles. NL will explore a more direct route through the cemetery. USEPA's assistance may be necessary to obtain access.

3.2.10 Site Security and Safety

Site safety and security will be conducted in accordance with the HASP and the Site Security Plan (Appendices C and D, respectively). Contractor will secure the active work areas.

Contamination Reduction Zones (CRZs) and exclusion zones will be identified and demarcated by the Contractor using fencing or high-visibility tape. It is anticipated that these zones will vary based on the active remediation zones.

3.2.11 Grading Control and Documentation

The top of the outlet riser for the Pine Lake, near Pine Lake road, will be used as the reference elevation for dewatering the lake. The Contractor will determine pre-existing grades of the sediment removal areas and excavation depths based on this benchmark. Grade control stakes will be set every 100 feet along the shoreline and at the same elevation as the top of the outlet riser. Two additional grade control stakes will be set parallel to the shoreline: one at the 2 ft and one at the 4 ft dewatering level. Following completion of sediment removal, the Contractor will document final removal depths. The spot elevations will be at the same locations as the topographical pre-excavation points to document that the work performed meets the Work Plan requirements. The information will be shown on a stamped surveyor's drawing developed by the Contractor. The summary drawing should be provided by the Contractor two weeks following completion of removal activities.

3.2.12 Docks

Several docks are located within the area of proposed dewatering/sediment removal. The owners of these docks will be contacted to determine the nature of the docks, foundations, etc. and to determine the appropriate handling procedures to allow the sediment removal to proceed. Excavation will be conducted as close to the dock as possible, without undermining the dock.

3.3 SEDIMENT REMOVAL ACTIVITIES

3.3.1 Air Monitoring and Dust Suppression

Air monitoring and dust suppression will be conducted in accordance with the Air Monitoring Plan (included in HASP) and the Fugitive Dust Control Plan (Appendices C and E, respectively).

3.3.2 Erosion and Sedimentation Controls

Erosion, sedimentation, and stormwater control will be performed in accordance with the Stormwater Runoff Control Plan in Appendix E. The installation and maintenance of erosion and sediment control features will be in accordance with local, state and federal regulations, meet BMPs, and be approved by the USEPA. The Contractor will have personnel on-site trained to implement BMPs and responsible for preventing sediment releases to sewers, streams and other temporary or permanent water bodies.

The Contractor will utilize a double row of silt fence between the sediment removal areas and the edge of water (as determined once Pine Lake has been de-watered) and single silt fence rows between proposed 1,000 cy excavation grids to prevent cross-contamination. Silt curtains, or USEPA-approved alternative, may be used in the eastern finger of Pine Lake in areas that may not be fully de-watered.

A biodegradable, net-free erosion matting (e.g., Curlex® Net Free™) will be used to cover the disturbed areas in the excavated areas within the lake. This material will provide protection from clean sediments eroding into the lake while it re-fills.

The selected erosion and sediment control materials will be installed by the Contractor in accordance with the manufacturer's recommendations.

3.3.3 Utility Verification

Prior to excavation, the Contractor will coordinate with local utilities and a private utility locator services (as necessary) to identify and mark all utilities (underground, surface and above-ground) in accordance with local, state and federal regulations. All utilities will be marked and preserved throughout excavation and restoration. The Contractor will also request utility clearances from local utility companies, as needed. Care will be taken to protect all utilities including the lake aeration system during operations. Any damaged utilities will be repaired by the Contractor at no cost to the property owner, or the Respondent.

3.3.4 Traffic Control

All excavated material will be transported via surface streets or through the cemetery directly to the staging area or the off-site disposal facility. The Contractor will control vehicular traffic to make sure activities are performed safely and efficiently and the Contractor and his personnel will remain cognizant of the highly intrusive nature of this work and the close proximity of residents. Speed limits will be established and enforced to minimize dust generation and maintain a safe environment for workers and local residents, including children. All trucks hauling excavated sediments or backfill material will be tarped during transportation.

3.3.5 Excavation

The removal areas will be excavated by the Contractor to a depth of no more than 30 inches below the pre-excavation ground surface. Excavations will be conducted using construction equipment proposed by the Contractor and approved by the QA official. The initial excavation depths will be based on the test pit sampling (See Section 3.2.2).

The sediment removal will be performed in phases to control the potential for cross-contamination and sediment releases (contaminated or clean) into the un-dewatered portions of Pine Lake. The Contractor will limit a disturbed/excavation area to no more than 1,000 cy. Prior to the Contractor

starting the excavation of a subsequent area, the previous area must be confirmed clean (i.e., the clean-up goals have been achieved), and erosion/stormwater management and cross-contamination control measures must be in place.

The horizontal limits of removal in the eastern finger of Pine Lake extends into water depths of approximately 6 feet. Sediments to be removed from this area may be excavated through the water column using trackhoes if the area is not fully de-watered. The Contractor will use a single row of silt curtains or other approved means to prevent suspended sediments from migrating outside of the removal area and into the undisturbed portion of the lake. A second row of silt curtains will be installed if visible inspection of the single row indicates significant sediment transport around/under/through the silt curtain. All silt curtains will be installed in accordance with the manufacturer's recommendations. The Contractor may propose alternative methods for sediment removal and control for this area. Alternatives shall be approved by the Respondent and USEPA prior to implementation.

Materials will be loaded into transport vehicles for transportation to a temporary stockpile within the staging area or direct to the disposal facility. All transport vehicles will have sealable tailgates to prevent excess liquid from the sediments from leaking during transport.

3.3.6 Confirmation Sampling

Following removal to the initial depths indicated by the test pit investigation, confirmation sampling will be performed. Sampling will be conducted by the Contractor and will consist of composite sampling. Five discrete sediment samples will be collected every 2500 sf. The samples will be collected 0-6 inches in depth from the bottom of the area. The samples will be composited, homogenized and a representative sample will be obtained and placed in a re-sealable plastic bag or testing cylinder. The XRF will then be used to determine the total lead concentration of the sample.

If the result of that testing shows the concentration to be less than 600 mg/kg, then the area will be considered below the clean-up level. If post-excavation sampling exceeds the 600 ppm lead

concentration, an additional 6 inches of sediment will be removed and additional sampling will be conducted using the same procedures. No sampling will be performed following a 30-inch excavation. The correction factor obtained from the 5% off-site laboratory analysis of the composite delineation sampling will be applied to all XRF results and concentrations of the confirmation samples. Final removal depths will be based on the XRF results obtained in the field. If localized pockets of high concentration materials are identified, the localized pockets may be excavated and a representative sample of the excavated area will be used in the final composite used to characterize the sampling area.

3.3.7 Water Management

Any excess water (e.g., precipitation runoff, groundwater seepage, etc) which accumulates in the excavation areas after dewatering will be removed as necessary by the Contractor to facilitate the sediment removal, and subsequent restoration activities (See Section 3.5). This water will be pumped into the un-dewatered portion of the lake and released in a manner which minimizes turbidity after filtering using filter bags. The filter bags shall be fabricated using non-woven geotextile fabric with an apparent opening size (AOS) of 70 or smaller which retains all sediment particles larger than 150 microns. Length and diameter shall be selected based on the anticipated flow. Filter bags shall be placed on well vegetated areas which are flatter than 5% and which will not erode when subjected to bag discharges or other areas approved by the Respondent and USEPA. The Contractor will be required to perform this work in a manner that does not exceed the Illinois General Use Water Quality Standards.

3.3.8 Protection of Existing Property

Throughout Site preparation, removal, and restoration activities, the Contractor will implement procedures to protect existing property features from damage. Procedures will include safe working distances, warning tape, manual digging and temporary fencing and barriers. At the completion of work, and as necessary during the course of work in accordance with the applicable plans, driveways and sidewalks will be cleared using a dry method (e.g., brooms or air sweeping). If a wet method is

necessary (e.g., power spray), the Contractor will ensure that the water is collected in a manner such that sediment is prevented from entering stormwater inlets or other structures. Any damage to public or private properties shall be addressed by the Contractor at no expense to the property owner or any other party.

3.4 TREATMENT, TRANSPORTATION AND DISPOSAL

3.4.1 Stockpile Characterization Sampling

Once the excavated material, if it has not been direct loaded to the disposal facility, has been taken to the staging area, it will be placed in stockpiles for characterization purposes. It is anticipated that the stockpiles will be approximately 1,000 cubic yards (cy) in volume and that one composite sample will be collected from each stockpile. The composite samples will consist of aliquots collected from at least five randomly-located surface locations from each stockpile. Each aliquot will be collected using trowels, hand augers, and/or shovels. The aliquots will be placed in a mixing bowl and homogenized to generate one composite sample that represents the entire stockpile. Standard sampling and decontamination procedures, which will be followed in the field, are described in the QAPP found as Appendix A. The waste characterization samples will be sent to an approved off-site laboratory for TCLP lead analysis. If the sample result exceeds 5.0 mg/L lead, the stockpile will be stabilized onsite by the Contractor and retested; this process will be repeated until passing results (i.e., TCLP leachate is less than 5.0 mg/L) are achieved. If the waste characterization result is less than 5.0 mg/L, the material will not require treatment, prior to off-site disposal.

3.4.2 In-Situ Characterization Sampling

In addition to the proposed soil stockpile characterization, in-situ characterization sampling may be performed. In-situ characterization will be utilized if the Contractor prefers to transport the excavated sediment directly to the disposal facility. This will consist of determining the need for treatment from a localized area within an area scheduled for removal. A removal area will consist of

approximately 1,000 cy in volume based on initial proposed excavation depths[1]. The composite samples will consist of grab samples (aliquots) collected from at least 5 randomly-located areas about each removal area. Each aliquot will be collected from the ground surface to the initial proposed excavation depth using trowels, hand augers, and/or shovels. The aliquots will be placed in a mixing bowl and homogenized to generate one composite sample that represents the entire removal area. Standard sampling and decontamination procedures, which will be followed in the field, are described in the QAPP in Appendix A. The waste characterization samples will be sent to an approved off-site laboratory for analysis of TCLP lead. If the sample result exceeds 5.0 mg/L lead, the excavated sediment will be placed in the staging area and the stockpile characterization sampling will be implemented. If the sample result is less than or equal to 5.0 mg/L lead, the material will not require treatment and could then be loaded onto trucks for direct transport to the disposal facility.

3.4.3 Stabilization/Treatment

In the event that stabilization/treatment is warranted, the sediment stockpile will be stabilized in the staging area. The stabilization process will be accomplished by mechanical means (e.g., pug mill, trackhoe mixing within a contained area). The stabilization reagent and mixture ratios will be determined by the Contractor based on several effective proprietary and non-proprietary reagents and processes available on the market. Following stabilization of the stockpile, a sample will be collected following the procedures in section 3.4.1 and sent to the approved laboratory

Review and control of this Work Plan will be the means by which the USEPA and IEPA approve any necessary requirements for the stabilization treatment of sediments.

3.4.4 Transportation and Disposal

Following testing (and treatment as necessary) to confirm that the material is non-hazardous (i.e., less than 5.0 mg/L TCLP lead), the material will be loaded into trucks for transportation to one or more pre-approved off-site disposal facilities. Air monitoring and dust control will be conducted in

1. A greater frequency of sampling may be required by the approved off-site disposal facility.

accordance with the HASP and Fugitive Dust Control Plans (Appendices B and D, respectively). Once loaded, the trucks will be tarped and the material transported to the disposal facility. All transport vehicles will have sealable truck bodies to prevent any excess moisture from the sediments from leaking out of the truck. Appropriate local, state, and federal regulations will be followed for documentation, placarding, and transporting of the material. All material will be tracked in accordance with federal, state, and local regulations (e.g. bills of lading or manifests, as appropriate). A summary tracking spreadsheet will be generated at the start of the project and will be updated as sediment is exported. At a minimum, the spreadsheet will contain the date and time of shipment, trucking company, truck number, and sediment tonnage determined by a certified scale.

3.5 RESTORATION

3.5.1 General

The Contractor shall plan on completing the shoreline stabilization and restoration/erosion control measures within 5 calendar days of receipt of confirmatory sample results or following sediment removal if the excavation extends to 30 inches. No general backfilling of the excavations will be performed. Fill placement is for the sole purpose of preventing the shoreline from eroding or collapsing into the lake. The Contractor will also place fill and/or topsoil in areas immediately adjacent to the lake that were disturbed due to the removal activities. Backfill materials will be temporarily stored in clean areas of the Site or in the staging area, as needed. The material will be staged in a manner that minimizes disruption to adjacent areas.

3.5.2 Structural Soil Fill

Structural soil fill material will be used to backfill the shoreline and to stabilize the embankment, where necessary (See Figure 3-1). Soil samples will be collected prior to use and submitted by the Contractor for laboratory analysis. The analysis must be less than the Illinois Pollution Control Board (IPCB) soil background concentrations (see Table 3-1) unless otherwise approved by AGC. Structural soil fill materials will be free from roots and other organic matter, trash, debris, and stones

larger than three inches in any dimension. Soil fill materials will be placed in loose 12 inch (maximum) lifts and compacted by mechanical methods as approved by the QA official.

3.5.3 Topsoil Fill

Topsoil materials will be placed as necessary in land areas disturbed by the removal activities. Structural soil fill may be used first if deeper fill amounts are necessary to properly restore the disturbed areas. Once topsoil is placed, it shall be lightly compacted by mechanical methods approved by the QA official and tilled for acceptance of seed, fertilizer, and mulch.

Topsoil material will be a natural, friable soil with organic content of at least 2% and nutrients sufficient to sustain grass growth and free of any trash or other deleterious debris. The maximum particle size will be 3/4 inch and rocks greater than 1/8 inch shall not be greater than 5% total by weight. The Contractor will screen the topsoil so the maximum particle size is not exceeded. Topsoil samples will be collected prior to use and submitted by the Contractor for laboratory analysis and the results will be compared to IPCB soil background concentrations (see Table 3-1) and also that the topsoil has appropriate soil nutrients and organic content.

3.5.4 Seeding

The Contractor will apply a seed mix tolerant to the local conditions which will expedite initial turf and a more permanent seed mixture for final grass of the restored land areas. Straw mulch will be applied upon completion of seeding. The Contractor may opt to use a hydroseed mix which will consist of seed, fertilizer and straw mulch to protect the seed from erosion and predation. Erosion control devices will remain in-place until vegetation has been established in disturbed areas. The Contractor will be responsible for the turf establishment and will prepare a maintenance schedule to allow grass to be established before the onset of inclement weather.

3.5.5 Erosion/Sediment Control

Following completion of the shoreline embankment stabilization, a biodegradable, net free erosion material (e.g., Curlex® Net Free ™) will be used to cover the disturbed areas in the excavated areas within the lake. This material will provide protection from clean sediments eroding into the lake while it is refilling. The selected material will be installed in accordance with the manufacturer's recommendations. In addition, the biodegradable material will provide an initial organic material to assist in the re-establishment of aquatic organisms.

3.5.6 Beach Restoration

The west side of the peninsula between the western and middle lake fingers reportedly has a sand bottom. The Contractor will obtain a sample of the sand and determine the gradation of the material. A similar material will be obtained by the Contractor and used to replace the sand material to the same horizontal and vertical limits of the pre-removal conditions.

3.5.7 Lake Re-Filling

It is anticipated that the lake will re-fill naturally from precipitation events. In the event the lake level is low enough to threaten the survival of the lake biota, additional water may be added to partially re-fill the lake. Any lake re-filling will be coordinated with members of the Pine Lake Homeowners Association.

3.6 STAGING AREA REMOVAL

The Contractor will remove the staging area after all of the excavated sediment has been removed from the area. The base material will be tested and characterized every 1,000 cy to determine whether treatment (See Section 3.4) is necessary prior to off-site disposal. Additional materials, such as fencing, concrete barriers, will be cleaned of visible dirt removed and disposed of, re-sold, or recycled in accordance with the local, state and federal government.

The underlying soils will be tested in accordance with the procedures described in Section 3.3.6, with the exception that the depth of maximum removal will be 15-inches.

Any excavated area will be backfilled/topsoiled/seeded sufficiently to provide positive drainage.

4.0 PROJECT ORGANIZATION

Several organizations, companies and individuals will be involved in the successful performance of the work at the Site. These parties are summarized below and are shown on the organizational chart on Figure 4-1.

4.1 PROJECT COORDINATOR

The Project Coordinator, on behalf of the Respondent, will be Mr. Kevin Lombardozzi or Mr. Russ Perry. Mr. Lombardozzi or Mr. Perry will be responsible for overall direction of the removal action including coordinating the efforts of the design, sampling and remediation and apprising the Regulators of project status.

4.2 REGULATORS

The USEPA has designated Mr. Kevin Turner of the Emergency Response Branch, Region 5, as its On-Scene Coordinator (OSC). The OSC shall be responsible for overseeing the Respondent's implementation of the work specified in this Work Plan. The OSC will have the authority vested in an OSC by the National Contingency Plan (NCP), including the authority to halt, conduct, or direct any work that is not being performed consistent with this Work Plan. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

The Illinois Environmental Protection Agency Project Officer will be Mr. Gerald Willman.

4.3 PROJECT DIRECTOR AND PROJECT MANAGER

AGC will manage and oversee the remedial activities on behalf of the Respondent and will also serve as the Respondent's on-site representative. AGC's Project Director will be either Mr. Christopher Reitman or Mr. Stephen Kirschner. Mr. Kevin O'Rourke will function as the Project

Manager and will work closely with the Project Director to provide any necessary support for field activities.

4.4 QUALITY ASSURANCE (QA) OFFICIAL

AGC will provide full-time, on-site, oversight of all soil removal and sampling activities as well as Quality Assurance services. The QA official will be experienced in oversight of soil removal activities and will communicate with the AGC Project Manager, and USEPA's OSC and/or on-site representative.

4.5 REMOVAL CONTRACTOR

The Respondent will retain a contractor to conduct the removal operations. The Contractor will be responsible for completing the removal and restoration work and providing on-site Health and Safety and Quality Control services. The Contractor will be experienced in similar soil/sediment excavation, treatment and removal work.

4.6 DATA VALIDATION

In conjunction with QA activities, AGC will provide data validation services for all samples collected by AGC which are sent off-site for analysis. The laboratory data will be validated in accordance with USEPA Region 5 Standard Operating Procedure for Validation of CLP Inorganic Data (USEPA, 1993). The QA Manager will be Jennifer Stanhope.

4.7 ANALYTICAL LABORATORY

AGC will utilize STL-Chicago of Chicago, Illinois or another USEPA approved laboratory for analysis of QA soil samples requiring off-site analysis.

5.0 REPORTING

5.1 MONTHLY REPORT

AGC, on behalf of the Respondent, will prepare monthly progress reports on the 10th day of every month following the date of receipt of USEPA's approval of the Work Plan through the execution of the AOC. The reports will describe significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems. The USEPA has indicated that electronic submittals of the monthly reports is preferred.

5.2 FINAL REPORT

Following completion of work items and validation of data, AGC will compile a Final Report for submission to USEPA. The report will include the following information:

- A listing of quantities and types of materials removed off-site or handled on-site;
- A discussion of removal and disposal options considered for those materials, and a listing of the ultimate destination of those materials;
- A presentation of the analytical results of all sampling and analyses performed and accompanying appendices containing all relevant documentation generated during the removal action; and

The report will be submitted within three months following completion of all work and validation of the data.

6.0 PROJECT SCHEDULE

The project schedule will be proposed by the selected Contractor and submitted to the Respondent for review and approval. At this time, AGC has prepared the following tentative project schedule:

- Contractor solicitation/selection 90 days after execution of the AOC;
- Contractor mobilization within 30 days of Notice-To-Proceed;
- Site preparation[2] and initial vertical excavation delineation[3] completed 90 to 120 days after initial Contractor mobilization;
- Remediation and restoration of Pine Lake 60 to 90 days; and
- Submittal of Final Report 90 days after field activities are completed.

The Work Plan implementation is expected at this time to be performed during the summer months to reduce the amount of water requiring management. The Contractor is expected to conduct work six days per week to facilitate project completion. Work hours shall be in compliance with local ordinances. As approved by the QA official, extended work hours or weekend work may be necessary to keep on schedule.

---

2. Site preparation activities include, but not limited to, lake de-watering (estimated as 2 to 4 weeks), installation of erosion control features, silt curtain deployment, support zone set-up, ingress/egress set-up, and grade control set-up.

3 Delineation includes preparation by the Contractor of the initial removal plan limits, designation of removal area phases, and E/S control measures and subsequent review and approval of the plan by the Respondent and USEPA.

7.0 HEALTH AND SAFETY

A HASP has been developed as part or this Work Plan (Appendix B). The remediation Contractor may opt to develop its own HASP for remediation activities. If so, the Contractor's HASP shall meet all the requirements of the current HASP as well as all requirements in the AOC.

8.0 REFERENCES

U.S. Environmental Protection Agency (USEPA). Region 5 Central Regional Laboratory. September 1993. Region 5 Standard Operating Procedure for Validation of CLP Inorganic Data. Chicago, Illinois.

U.S. Environmental Protection Agency (USEPA), Office of Solid Waste and Emergency Response 1996. Soil Screening Guidance: User's Guide. Washington, D.C. 20460 EPA/9355.4-23.

U.S. Environmental Protection Agency (USEPA), Federal Register, 2001. Lead; Identification of Dangerous Levels of Lead; Final Rule. EPA/40 CFR Part 745.

Illinois Environmental Protection Agency (IEPA). 2002. CERCLA Reassessment Report, St. Louis Smelting and Refining, Madison County, Collinsville, Illinois. ILD 980607606 LPC#1194280014

U.S. Environmental Protection Agency (USEPA), Office of Emergency and Remedial Response. August 2003. Superfund Lead - Contaminated Residential Sites Handbook, EPA/9285.7-50

Advanced GeoServices Corp. (AGC) Removal Action Work Plan for St. Louis Smelting and Refining Site, May 18, 2004.

TABLE

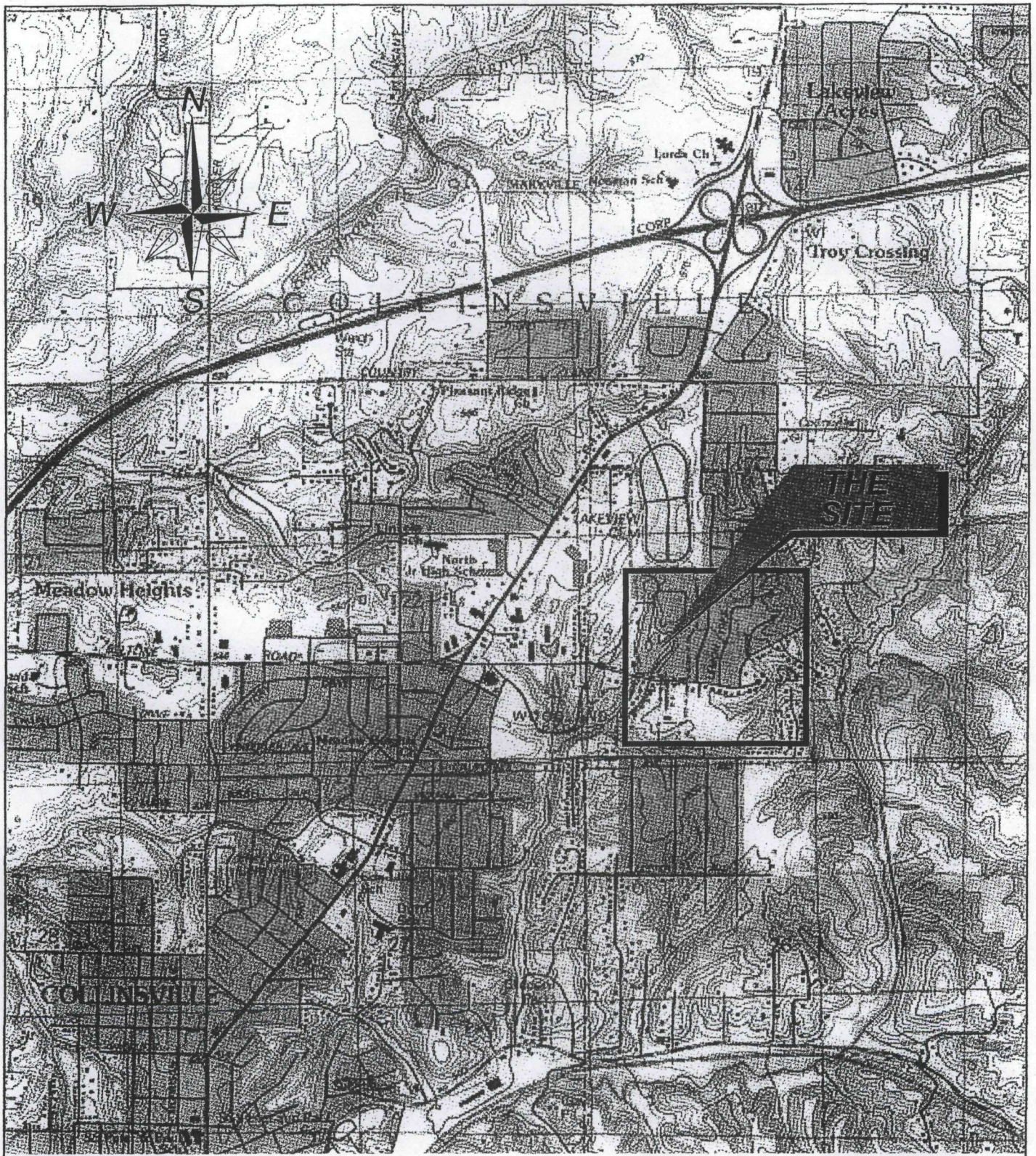
TABLE 3-1

CONCENTRATIONS OF CHEMICALS IN BACKGROUND SOILS

Chemical Name	Counties Within Metropolitan Statistical Areas[a] (mg/kg)	Counties Outside Metropolitan Statistical Areas (mg/kg)
Aluminum	9,500	9,200
Antimony	4.0	3.3
Arsenic	13.0	11.3
Barium	110`	122
Beryllium	0.59	0.56
Cadmium	0.6	0.50
Calcium	9,300	5,525
Chromium	16.2	13.0
Cobalt	8.9	8.9
Copper	19.6	12.0
Cyanide	0.51	0.50
Iron	15,900	15,000
Lead	36.0	20.9
Magnesium	4,820	2,700
Manganese	636	630
Mercury	0.06	0.05
Nickel	18.0	13.0
Potassium	1,268	1,100
Selenium	0.48	0.37
Silver	0.55	0.50
Sodium	130	130.0
Sulfate	85.5	110
Sulfide	3.1	2.9
Thallium	0.32	0.42
Vanadium	25.2	25.0
Zinc	95.0	60.2
No volatile or semi-volatile organic compounds, herbicides, pesticides, or PCBs above detection limit.		

[a]*BOARD NOTE: Counties within Metropolitan Statistical Areas: Boone, Champaign, Clinton, Cook, DuPage, Grundy, Henry, Jersey, Kane, Kankakee, Kendall, Lake, Macon, Madison, McHenry, McLean, Menard, Monroe, Peoria, Rock Island, Sangamon, St. Clair, Tazewell, Will, Winnebago and Woodford.* (Source: Amended at 25 Ill. Reg. 651, effective January 6, 2001, Section 742.TABLE G: Concentrations of Inorganic Chemicals in Background Soils)

FIGURES



REFERENCE: U.S.G.S. COLLINSVILLE, IL
7.5 MINUTE QUADRANGLE MAP 1991.

ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, ILLINOIS

2000 0 2000 4000

SCALE IN FEET

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-42

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-42.dwg

Scale: 1" = 2000'	SITE LOCATION MAP
Originated By: K.O.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No. 2003-1055-01-42	
Issued: OCT 26 [illegible]	Project No. 2003-1055-01

Advanced GeoServices Corp.
1055 Andrew Drive, Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

FIGURE: 1-1

Revision	Description	Date	By

LEGEND:

SITE BOUNDARY

PINE LAKE

NOTES:

1. SUBDVISION DRAWING PROVIDED IN NAD 83 ILLINOIS WEST BY MADISON COUNTY MAPS AND PLATS GIS DIVISION

J:\Collinsville\drawings\2003-1055-08\2003-1055-08-01

J:\Collinsville Smelter\drawings\2003-1055-08\2003-1055-08-01.dwg

ST. LOUIS SMELTING AND REFINING SITE

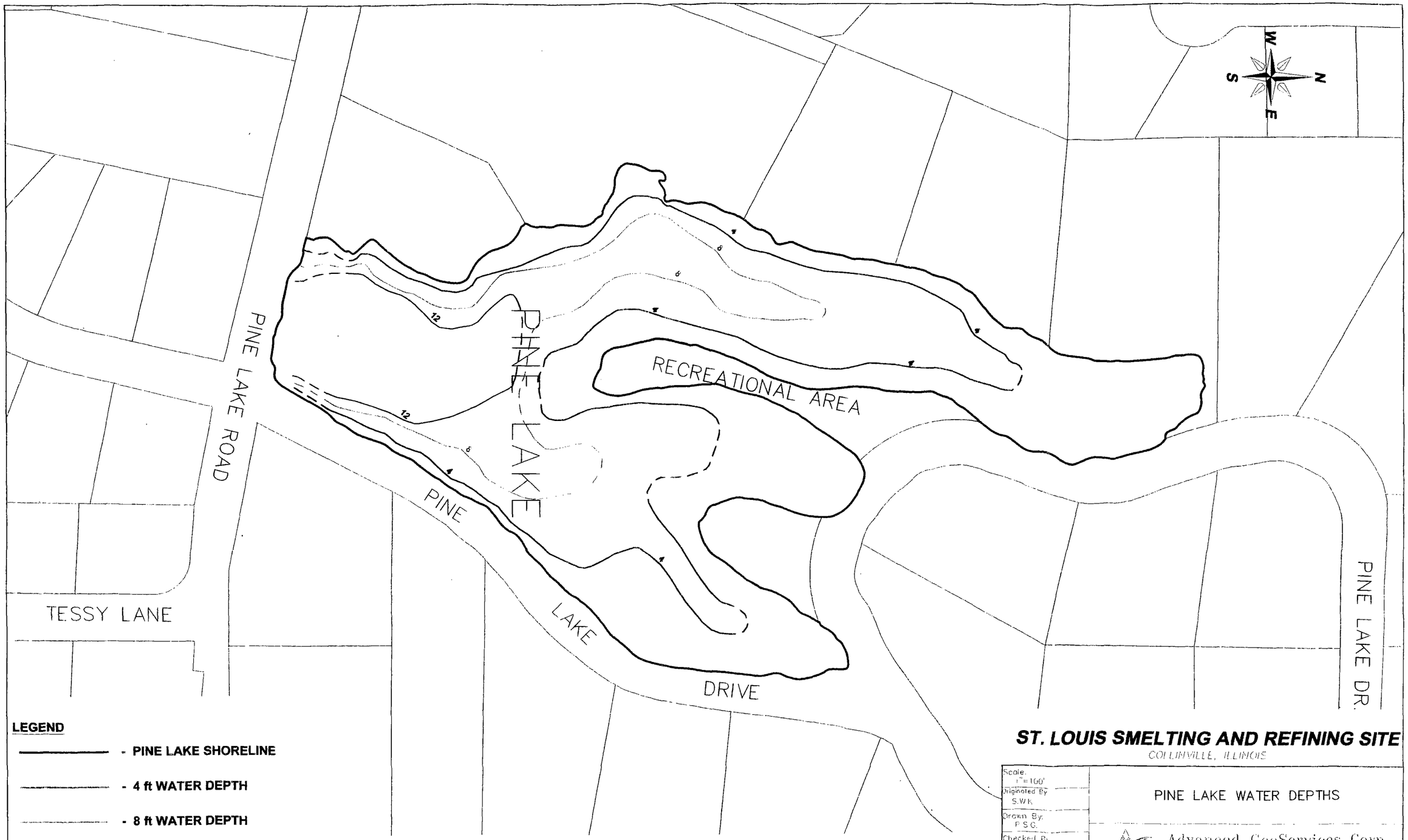
COLLINSVILLE, ILLINOIS

Scale: 1" = 300'	SITE BOUNDARY
Originated By: K.O.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No. 2003-1055-08-01	
Issued: OCT 26 2005	

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

Project No. 2003-1055-08

FIGURE: 1-2



LEGEND

- PINE LAKE SHORELINE
- 4 ft WATER DEPTH
- 8 ft WATER DEPTH
- 12 ft WATER DEPTH

NOTE: CONTOURS SHOWN ARE APPROXIMATE AND WERE PREPARED FOR ILLUSTRATION PURPOSES ONLY.

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-41

ST. LOUIS SMELTING AND REFINING SITE

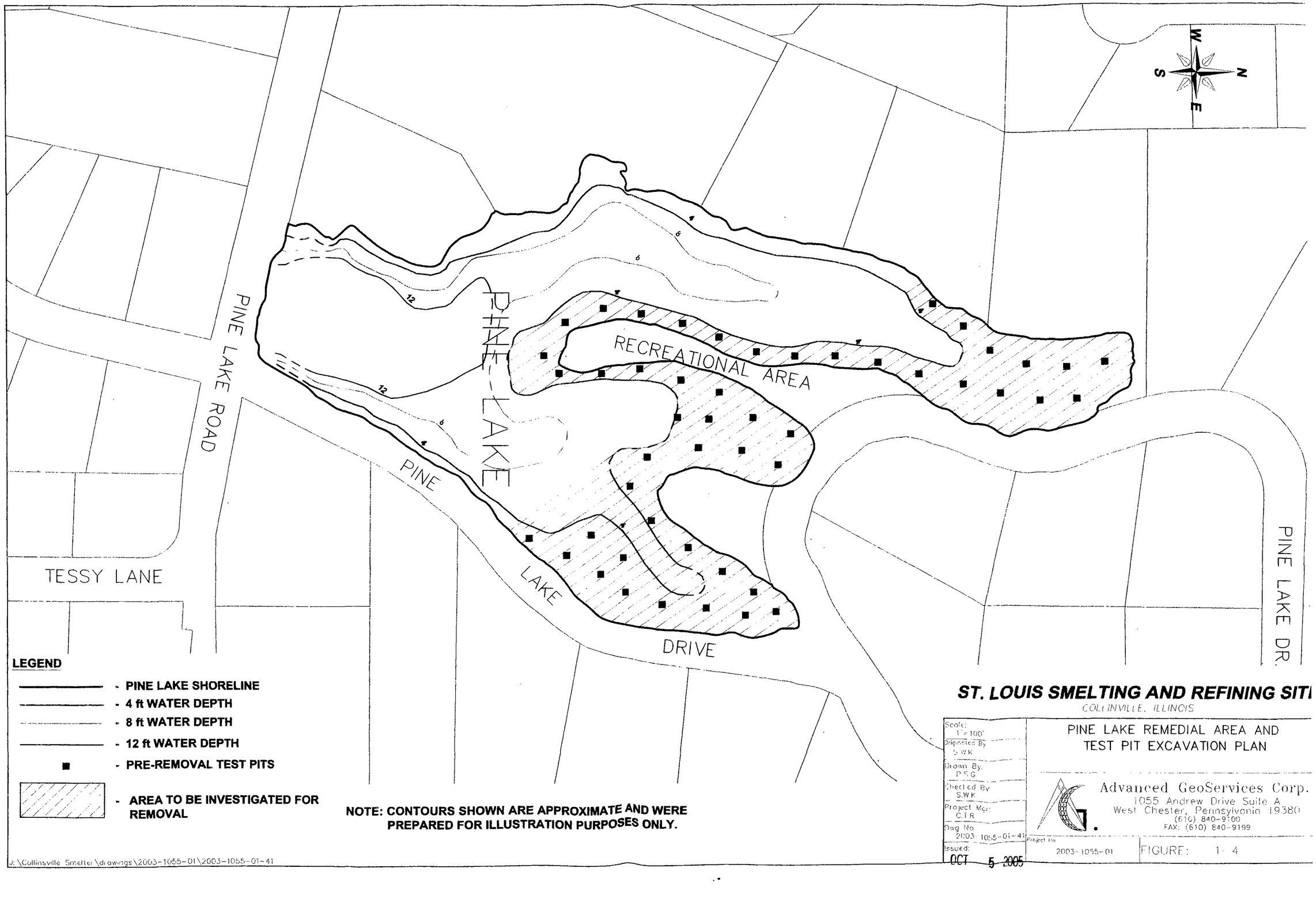
COLLINSVILLE, ILLINOIS

PINE LAKE WATER DEPTHS

Scale: 1"=100'	
Originated By: S.W.K.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No: 2003-1055-01-41	
Issued: OCT 5 2005	Project No: 2003-1055-01

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

FIGURE: 1-3



LEGEND

- PINE LAKE SHORELINE
- 4 ft WATER DEPTH
- 8 ft WATER DEPTH
- 12 ft WATER DEPTH
- PRE-REMOVAL TEST PITS
- AREA TO BE INVESTIGATED FOR REMOVAL

NOTE: CONTOURS SHOWN ARE APPROXIMATE AND WERE PREPARED FOR ILLUSTRATION PURPOSES ONLY.

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-41

ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, ILLINOIS

PINE LAKE REMEDIAL AREA AND TEST PIT EXCAVATION PLAN

Scale: 1" = 100'	
Digitized By: S.W.K.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No: 2003-1055-01-41	Project No: 2003-1055-01
Issued: OCT 5 2005	FIGURE: 1-4

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

NOTE:

INFORMATION / FIGURE PREPARED BY IEPA AND BASED ON IEPA SAMPLING.

ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, ILLINOIS

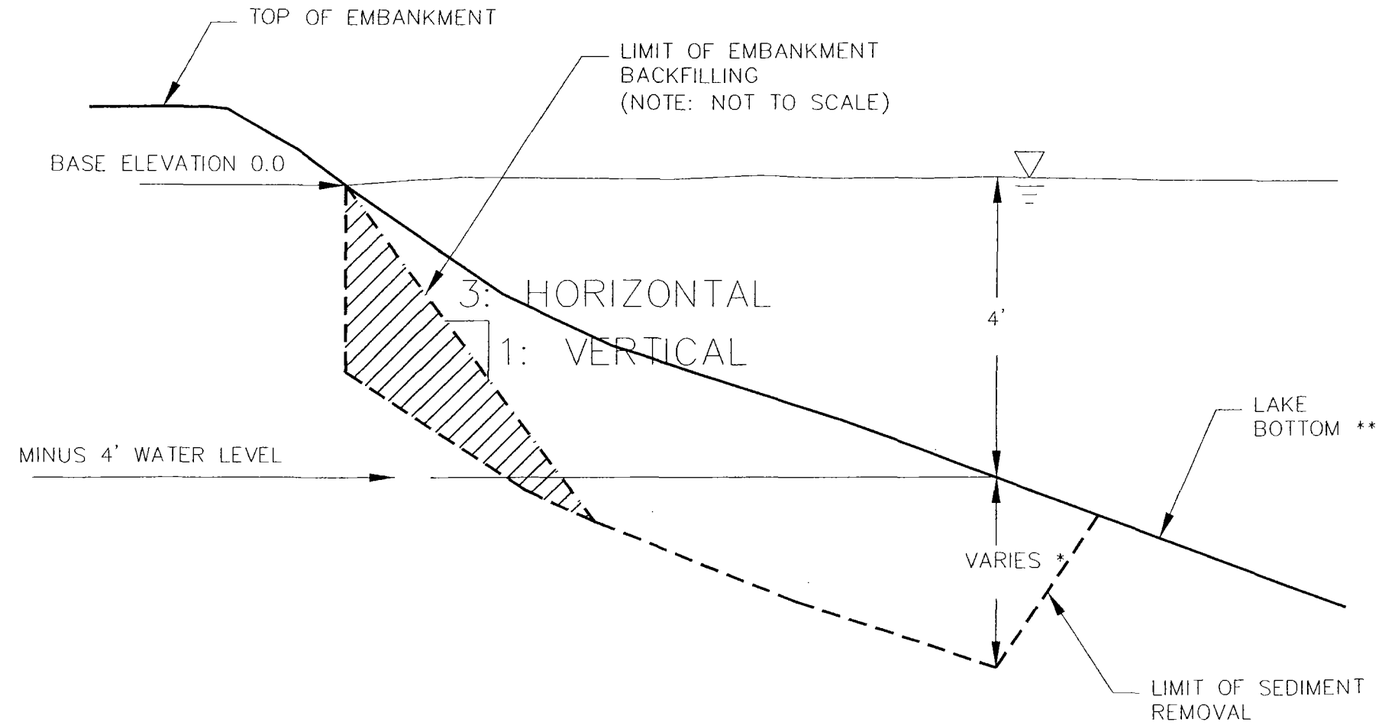
IEPA SAMPLING SUMMARY

Scale: 1" = 2000	
Originated By: S.W.K.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No. 2003-1055-08-02	
Issued: OCT 26 2005	Project No 2003-1055-08

Advanced GeoServices Corp.
1055 Andrew Drive, Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX (610) 840-9199

FIGURE: 2-1

J:\Collinsville Smelter\drawings\2003-1055-08\2003-1055-08-02
J:\Collinsville Smelter\drawings\2003-1055-08\2003-1055-08-02.dwg



LEGEND

- LIMIT OF BACKFILL MATERIAL ALONG SHORELINE
- LIMIT OF SEDIMENT REMOVAL
- LIMIT OF BACKFILL SURFACE

* DEPTH WILL BE 30" (MAX) OR THE 600 mg/kg CONCENTRATION LIMIT, WHICHEVER IS SHALLOWER.

** A BIODEGRADABLE EROSION MAT WILL BE PLACED ON EXCAVATED AREAS WITHIN THE DISTURBED LAKE AREA FOLLOWING BACKFILLING.

ST. LOUIS SMELTING AND REFINING SITE

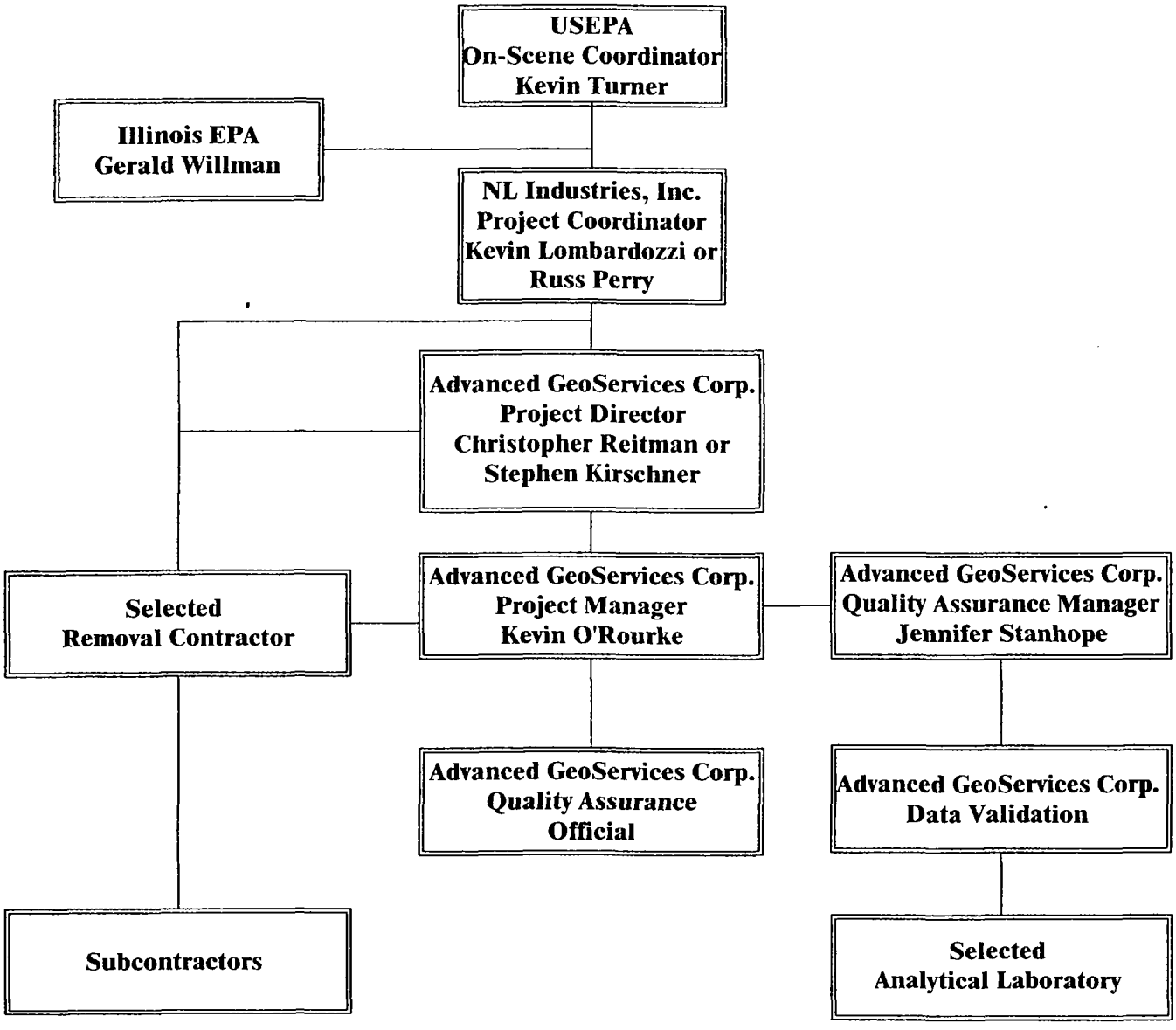
COLLINVILLE, ILLINOIS

Scale: N.T.S.	CONCEPTUAL VIEW OF SEDIMENT REMOVAL AND BACKFILL OF SHORELINE
Originated By: S.W.K.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No. 2003-1055-01-41	
Issued: OCT 26 2005	Project No. 2003-1055-01 — FIGURE: 3-1

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-41

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-41.dwg



ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, ILLINOIS

Scale: NO SCALE	PROJECT ORGANIZATION
Originated By: KO	
Drawn By:	
Checked By: KO	
Project Mgr: CTR	
Dwg No. 2003-1055-01-09	
Issued: OCT 26 2005	

Advanced GeoServices Corp.
1055 Andrew Drive, Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

Project No. 2003-1055-01

FIGURE: 5-1

J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-09
~~J:\Collinsville Smelter\drawings\2003-1055-01\2003-1055-01-09.dwg~~

APPENDICES

APPENDIX A

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENTS

Prepared By:

ADVANCED GEOSERVICES CORP.

West Chester, Pennsylvania

2003-1055-08

October 26, 2005

QUALITY ASSURANCE PROJECT PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENT REMOVAL

Prepared By:

ADVANCED GEOSERVICES CORP.

West Chester, Pennsylvania

Christopher T. Reitman
Project Director

Jennifer M. Stanhope
QA Manager

QUALITY ASSURANCE PROJECT PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENT REMOVAL

Prepared By:

ADVANCED GEOSERVICES CORP.

West Chester, Pennsylvania

Christopher T. Reitman	Jennifer M. Stanhope
Project Director	QA Manager

The Quality Assurance Project Plan (QAOP) (Appendix B) from the residential properties Removal Action Work Plan, dated May 18, 2004 was reviewed by AGC and it was determined the QAPP would be appropriate since the analytical field and laboratory methods are the same and the matrix is still a solid. Therefore, the residential properties QAPP will be implemented for the Pine Lake Sediment Removal Action, with the following minor modifications.

1) Section 1.1.1 and Figure QAPP-1 - Stephen W. Kirschner, P.E. will replace Barbara L. Forslund as the alternative Project Director. Mr. Kirschner has 20 years of engineering experience. He has worked on many lead removal projects in residential/industrial settings as both the residential engineer and project manager.

2) Section 2.1.1.1 - Replace this section with Section 3.2.2 "Test Pit Sampling" from the Removal Action Work Plan for Pine Lake Sediments, dated October 3, 2005.

3) Section 2.1.1.2 - Replace this section with Section 3.3.6 "Confirmation Sampling" from the Removal Action Work Plan for Pine Lake Sediments, dated October 3, 2005.

4) Distribution List - Kevin Lombardozzi of Contran Corp/NL Industries, Inc. replaces Terry Casey. Mr Lombardozzi's address is:

Contran Corp.
NL Industries, Inc.
Three Lincoln Center
5430 LBJ Freeway, Suite 1700
Dallas, TX 75240

APPENDIX B

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENTS

Prepared by:

ADVANCED GEOSERVICES CORP.
West Chester, Pennsylvania

Project No. 2003-1055-08
October 26, 2005

The Health and Safety Plan (HASP) (Appendix C) from the residential properties Removal Action Work Plan, dated May 18, 2004 was reviewed by AGC and it was determined the HASP would be appropriate since the removal methods and constituent of concern (lead) are the same for both removal actions. Therefore, the residential properties HASP will be implemented for the Pine Lake Sediment Removal Action.

APPENDIX C

SITE SECURITY PLAN

SITE SECURITY PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENTS

Prepared By:

ADVANCED GEOSERVICES CORP.
West Chester, Pennsylvania

2003-1055-08
October 26, 2005

The Contractor will be responsible for securing the sediment removal work areas.

The Site Security Plan (SSP) (Appendix D) from the residential properties Removal Action Work Plan, dated May 18, 2004 was reviewed by AGC and it was found to be appropriate since the sediment removal work is similar to nature to the residential removal work. Therefore, the SSP will be utilized without change for the Pine Lake Sediment removal work.

APPENDIX D

FUGITIVE DUST CONTROL PLAN

FUGITIVE DUST CONTROL PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENTS

Prepared By:

ADVANCED GEOSERVICES CORP.
West Chester, Pennsylvania

2003-1055-08
October 26, 2005

The Fugitive Dust Control Plan (FDCP) (Appendix E) from the residential properties Removal Action Work Plan, dated May 18, 2004 was reviewed by AGC and it was found to be appropriate based on the similar activities that will be performed during the sediment removal as the residential removal, and the constituent of concern is the same. In addition, the wet nature of the sediments may actually result in lower dust generation. Therefore, the FDCP will be implemented without modifications for the Pine Lake Sediment Removal Action.

APPENDIX E

STORMWATER RUNOFF CONTROL PLAN

STORMWATER RUNOFF CONTROL PLAN FOR

COLLINSVILLE, ILLINOIS PINE LAKE SEDIMENTS

Prepared by:

ADVANCED GEOSERVICES CORP.
West Chester, Pennsylvania

Project No. 2003-1055-08
October 26 2005

The stormwater Runoff Control Plan (SRCP) (Appendix F) from the residential properties Removal Action Work Plan, dated May 18, 2004 has been reviewed by AGC and it was found to be appropriate since the removal activities are similar to those being used for the residential removal action. Therefore, the SRCP will be implemented for the Pine Lake Sediment Removal Action with the following modifications.

1) New Section 2.5 "Erosion Control Matting: - This new section will be consistent with Section 3.5.5 of the Removal Action Work Plan for Pine Lake Sediments, dated October 3, 2005.

2) New Section 2.6 "Water Management" - This new section will be consistent with Section 3.3.7 of the Removal Action Work Plan for Pine Lake Sediments, dated October 3, 2005.

APPENDIX B

Revision	Description	Date	By

LEGEND:

SITE BOUNDARY

PINE LAKE

NOTES:

1. SUBDVISION DRAWING PROVIDED IN NAD 83 ILLINOIS WEST BY MADISON COUNTY MAPS AND PLATS GIS DIVISION

J:\Collinsville\drawings\2003-1055-08\2003-1055-08-01

J:\Collinsville Smelter\drawings\2003-1055-08\2003-1055-08-01.dwg

ST. LOUIS SMELTING AND REFINING SITE

COLLINSVILLE, ILLINOIS

Scale: 1" = 300'	SITE BOUNDARY
Originated By: K.O.	
Drawn By: P.S.G.	
Checked By: S.W.K.	
Project Mgr: C.T.R.	
Dwg No. 2003-1055-08-01	
Issued: OCT 26 2005	
Project No. 2003-1055-08	FIGURE: 1-2

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199